IN THE CLAIMS

Please amend the claims as follows:

1. (original) Apparatus for optical inspection (1) of an object (8), comprising:

an optical imaging system (5) for generating an actual image of the actual object (8),

a recording unit (7) for recording the actual image of the actual object,

a calculation unit (12) for calculating an estimated image of an object of desired shape in respect of a known aberration coefficient of the optical imaging system (5), an image analysis unit (13) for detecting differences between the actual image and the image calculated by the calculation unit (12).

2. (original) Method for optical inspection of an object, comprising the steps of:

- generating an actual image of the actual object (8) by using an optical imaging system (5), wherein the aberration of the optical imaging system is known
- calculating a desired image of the desired object in respect of the determined

aberration of the optical imaging system (5),

- detecting differences between the actual image and a desired image.

3. (original) Method as claimed in claim 2, wherein the aberration of the optical system is determined.

4. (original) Method as claimed in claim 2, wherein the actual image is generated when the object (8) is approximately in a focal plane of the imaging system.

5. (original) Method as claimed in claim 2, wherein the actual image is generated when the object (8) is in a non-focal plane of the imaging system.

6. (original) Method as claimed in claim 2, wherein the step of generating the actual image comprises the sub-steps of:

- generating a first actual image when the object is in a first plane, and
- generating a second actual image when the object is in a second plane, different from the first plane,
- - the step of calculating the desired image comprises the sub-steps of:
  - calculating a first desired image for the object in the

first plane, and

- calculating a second desired image for the object in the second plane, and the step of detecting differences between the actual image and the desired image comprising the sub-steps of:
  - detecting differences between the first actual image and the first desired image, and
  - detecting differences between the second actual image and the second desired image.

7. (original) Method as claimed in claim 5, wherein the step of generating the actual image further comprises the sub-step of:

- generating a further actual image when the object is in at least one further plane different from the first plane and the second plane,
- the step of calculating the desired image further comprising the sub-step of:
  - calculating a further desired image when the object (8) is in at least a further plane,
  - and the step of detecting differences between the actual image and the desired image further comprising the sub-step of:
    - detecting differences between the assigned further actual

image and the further desired image.

8. (original) Method as claimed in claim 6, wherein the first plane is a focal plane of the imaging system, the second plane is above the focal plane and the further plane is below the focal plane.

9. (original) Method as claimed in claim 2, further comprising the step of:

- determining the aberration in predetermined time periods.

10. (currently amended) Method as claimed in claim 2~~ or 9~~, further comprising the step of:

- determining the aberration behind the startup of the optical imaging apparatus (1).

11. (original) Method as claimed in Claim 2, wherein the step of determining the aberration

comprises the sub-steps of:

- determining a first aberration before the optical image is generated,
- determining a second aberration after the optical image is generated,

- the desired image being calculated by taking into account the first and second determined aberration.

12. (currently amended) Method as claimed in ~~anyone of the claims 2 to 11~~claim 2, wherein the object is a lithography mask (9).

13. (currently amended) Method as claimed in ~~anyone of the claims 2 to 11~~claim 2, wherein the object is a pre-manufactured semiconductor device.

14. (currently amended) Method as claimed in ~~anyone of the claims 2 to 11~~claim 2, wherein the optical imaging system (5) is an optical microscope, especially an optical immersions microscope or an EUV microscope.

15. (currently amended) Method as claimed in ~~anyone of the claims 2 to 11~~claim 2, wherein the optical imaging system is an electron microscope.

16. (currently amended) Method as claimed in ~~anyone of the claims 2 to 15~~claim 2, further comprising the step of identifying an area of error from the detected difference between the actual image and a desired image.

17. (original) Method as claimed in claim 16, further comprising the step of inspecting the area of error by a further inspection method.

18. (currently amended) Method of manufacturing an object, comprising the steps of:

- manufacturing the object,
- inspecting the object by a method as claimed in ~~anyone of the Claims 2 to 17~~claim 2,
- adjusting the manufacturing of the object in respect of the desired object,
- manufacturing another object.

19. (original) Mask (9) comprising IC-Circuit structured areas (21) and an infinitesimally small structure (25), which is suitable for determination of the aberration of an optical imaging system (5) of claim 1.

20. (original) Mask as claimed in claim 19, wherein the mask comprises a recognition structure (23).

21. (original) Mask as claimed in claim 19, wherein the

infinitesimal structure (25) is a small hole in accordance of the resolution of the optical imaging system (5), wherein the diameter of the hole is smaller than the resolution of the optical imaging system (5).